

Claims

- [c1] 1. A ballast circuit powered by an AC-to-DC converter in operative connection with an input power source, the AC-to-DC converter being configured to produce a DC voltage, the ballast circuit comprising:
- a DC bus in operative connection with said AC-to-DC converter, configured to receive the DC voltage;
 - an inverter circuit configured in operative connection with the DC bus, configured to generate an asymmetric alternating current on a lamp input line; and
 - a gas discharge lamp in operative connection to the lamp input line to receive the asymmetric alternating current.
- [c2] 2. The ballast circuit according to claim 1 wherein the inverter circuit includes:
- a switching network including bipolar junction transistor switches wherein the bipolar junction transistors are configured to have unequal on times.
- [c3] 3. The ballast circuit according to claim 2 wherein the bipolar junction transistor switches are configured to have unequal *hfe* values.
- [c4] 4. The ballast circuit according to claim 1 wherein the inverter circuit includes:
- a switching network including MOSFET transistor switches wherein the MOSFETs are configured to have unequal on times.
- [c5] 5. The ballast circuit according to claim 4 further including:
- back-to-back, series connected zener diodes bridging the gate and source terminals of the MOSFETs.
- [c6] 6. The ballast circuit according to claim 5 wherein the Zener diodes are configured with unequal voltage values.
- [c7] 7. The ballast circuit according to claim 1 further including:
- a DC blocking capacitor configured to block DC current from the asymmetric alternating current.
- [c8] 8. A method of supplying asymmetric alternating current to a gas discharge lamp from a ballast, the method comprising:
- converting an AC voltage from an input power source to produce a DC voltage on a DC

bus;

inverting said DC voltage to produce an asymmetric alternating current on a lamp input line; and

supplying a gas discharge lamp with the asymmetric alternating current in operative connection with said lamp input line.

[c9] 9. The method according to claim 8 wherein said inverting is performed by a switching network including bipolar junction transistor switches wherein the bipolar junction transistors are configured to have unequal on times.

[c10] 10. The method according to claim 9 wherein the bipolar junction transistor switches are configured to have unequal hfe values.

[c11] 11. The method according to claim 8 wherein said inverting is performed by a switching network including MOSFET transistor switches wherein the MOSFETs are configured to have unequal on times.

[c12] 12. The method according to claim 11 further including:
providing back-to-back, series connected zener diodes bridging the gate and source terminals of the MOSFETs.

[c13] 13. The method according to claim 12 wherein the Zener diodes are configured with unequal voltage values.

[c14] 14. The method according to claim 8 further including:
providing a DC blocking capacitor configured to block DC current from the asymmetric alternating current.

[c15] 15. A ballast circuit powered by an AC-to-DC converter in operative connection with an input power source, the AC-to-DC converter being configured to produce a DC voltage, the ballast circuit comprising:
a DC bus in operative connection with said AC-to-DC converter, configured to receive the DC voltage;
a lamp input current generating circuit in operative connection with the DC bus, configured to generate an asymmetric alternating current on a lamp input line; and
a gas discharge lamp in operative connection to the lamp input line to receive the

asymmetric alternating current.

[c16]

16 .The ballast circuit according to claim 15 further including:

a DC blocking capacitor configured to block DC current from the asymmetric alternating current.

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